

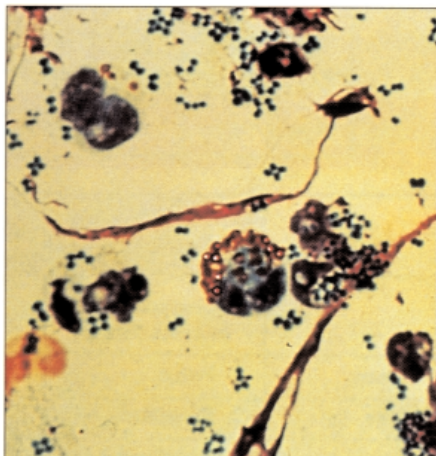
Dermal Pathogens

Transient bacteria, which under normal conditions cannot effectively compete with the established resident flora, presumably seed the skin from the environment or mucous membranes (2). Species include different coagulase-negative and -positive Staphylococci, *E. coli*, *Proteus*, as well as *Pseudomonas* organisms (3). In cats, subcutaneous abscesses caused by biting wounds are much more frequent than pyoderma. This also explains why bacteria usually found in the oral cavity, such as *Pasteurella multocida*, are very often isolated from feline dermal lesions.

Staphylococcus intermedius

In dogs, *Staph. intermedius*, a resident organism of mucous membranes, like nasal vestibulum or perianal skin has been identified to be the major pathogen in canine pyoderma. Spread over the skin surface by grooming, this organism, which is a nomad on healthy skin, takes advantage of transient changes in the local microenvironment and becomes pathogenic (2).

Cytology of dog with pyoderma showing cocci and Gram-negative bacteria.



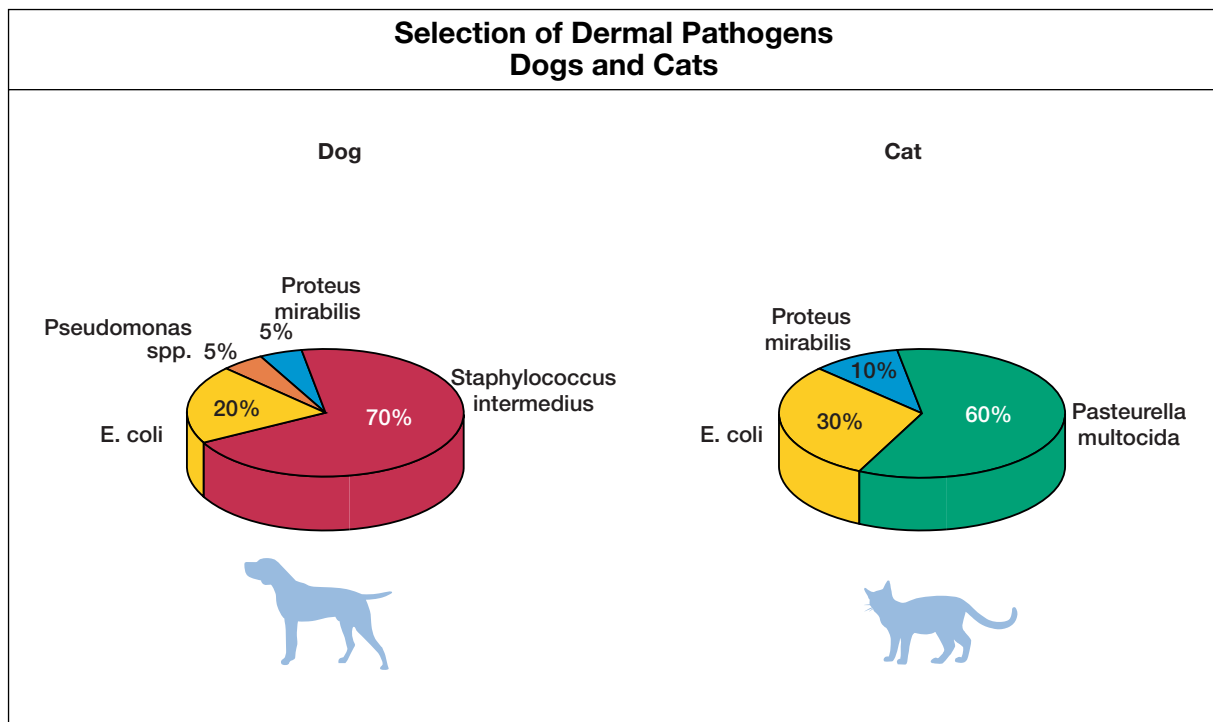
Note the large numbers of intraphagocytic bacteria. Systemic antibacterial therapy is required in such cases.

Bacterial Invasion Strategies

Production of specific proteins (protein A), toxins and enzymes (hyaluronidase) enable Staph. intermedius to escape the host defense system and break down the intercellular matrix to gain entry to the epidermis and deeper tissue compartments.

Staphylococci are also able to survive inside cells and phagocytes beyond the reach of antibiotics, which are not able to penetrate into the intracellular compartment (2).

Additionally, Staph. intermedius creates a tissue milieu conducive to secondary invasion of Gram-negative rods, such as E. coli, Pseudomonas or Proteus, which further complicate the condition.



Aucoin DP (4): Target, the antimicrobial reference guide. North American Compendiums Inc., 1993

References

- (2) Ihrke PJ: Bacterial skin disease in the dog: a guide to canine pyoderma. Veterinary Learning Systems Kansas USA, 1996.
- (3) Muller GH, Kirk RW, Scott DW: Bacterial Skin Diseases, in Muller GH, Kirk RW, Scott DW: Small Animal Dermatology, ed 4, W.B. Saunders Company Philadelphia: 211-246, 1989.
- (4) Aucoin DP: Target, the antimicrobial reference guide to effective treatment. North American Compendiums Inc., 1993.